

Amendments to the Claims

This listing of claims replaces all prior versions, and listings, of claims in the above-identified application:

1-18 (cancelled)

19. (Currently Amended) The method according to claim 30, thereby forming a A-glass-filler material for use in dental composites and dental restorations, the material comprising:

- a) about 65 to about 99.95 mol% silicon dioxide (SiO_2),
- b) 0 to about 15 mol% aluminum and/or boron oxide (Al_2O_3 , B_2O_3),
- c) 0 to about 30 mol % zirconium and/or titanium and/or hafnium oxide (ZrO_2 , TiO_2 , HfO_2), Y_2O_3 and/or Sc_2O_3 and/or La_2O_3 and/or CeO_2 and/or other lanthanide oxides,
- d) about 0.05 to about 4 mol% alkali metal oxides (Na_2O , Li_2O , K_2O , Rb_2O , Cs_2O), and
- e) 0 to about 25 mol% earth alkali metal oxides (MgO , CaO , SrO , and BaO),

wherein the glass filler particles have an average particle size of about 0.1 to about 20 μm and wherein these particles have an inner zone and an outer zone up to 1.5 μm and wherein the mean concentration of alkali ions of the outer zone relative to the mean concentration of alkali ions of the inner zone is 10 % or less and the alkali ions of the inner zone do not significantly migrate to the outer zone.

20. (Currently Amended) The method according to claim 30, thereby forming a A-glass-filler material for use in dental composites and dental restorations, the material comprising:

- a) about 75 to about 96.95 mol% silicon dioxide (SiO_2),
- b) 0 to about 10 mol% aluminum and/or boron oxide (Al_2O_3 , B_2O_3),
- c) about 3 to about 30 mol % zirconium and/or titanium and/or hafnium oxide (ZrO_2 , TiO_2 , HfO_2), Y_2O_3 and/or Sc_2O_3 and/or La_2O_3 and/or CeO_2 and/or other lanthanide oxides,
- d) about 0.05 to about 3 mol% alkali metal oxides (Na_2O , Li_2O , K_2O , Rb_2O , Cs_2O), and

e) 0 to about 15 mol% earth alkali metal oxides (MgO, CaO, SrO, BaO), wherein these particles have an inner zone and an outer zone up to 1.5 μm and wherein the mean concentration of alkali ions of the outer zone relative to the mean concentration of alkali ions of the inner zone is 10 % or less and the alkali ions of the inner zone are fixed in the particles by a drying process.

21. (Currently Amended) The method glass-filler material according to claim 19 or 20, wherein the glass filler material comprises [[comprising]]:

- a) about 75 to about 96.95 mol% silicon dioxide (SiO_2),
- b) 0 to about 5 mol% aluminum and/or boron oxide (Al_2O_3 , B_2O_3),
- c) about 3 to about 30 mol % zirconium and/or titanium and/or hafnium oxide (ZrO_2 , TiO_2 , HfO_2), Y_2O_3 and/or Sc_2O_3 and/or La_2O_3 and/or CeO_2 and/or other lanthanide oxides,
- d) about 0.05 to about 2 mol% alkali metal oxides (Na_2O , Li_2O , K_2O , Rb_2O , Cs_2O), and
- e) 0 to about 5 mol% earth alkali metal oxides (MgO, CaO, SrO, BaO).

22. (Currently Amended) The method glass-filler material according to claim 19, wherein the concentration of e) earth alkali metal oxides is not over 2 mol%.

23. (Currently Amended) The method glass material according to claim 19, wherein the glass filler particles have an average particle size of about 0.5 to about 3 μm .

24. (Currently Amended) The method glass material according to claim 19, wherein the maximal particle size is up to 100 μm .

25. (Currently Amended) The method glass material according to claim 19, wherein the refractive index n_D of the glass filler material is in the range of about 1.49 to about 1.55.

26. (Currently Amended) The method glass-filler material according to claim 20, wherein the concentration of e) earth alkali metal oxides is not over 2 mol%.

27. (Currently Amended) The method glass-material according claim 20, wherein the glass filler particles have an average particle size of about 0.5 to about 3 μm .

28. (Currently Amended) The method glass-material according to claim 20, wherein the maximal particle size is up to 100 μm .

29. (Currently Amended) The method glass-material according to claim 20, wherein the refractive index n_D of the glass filler material is in the range of about 1.49 to about 1.55.

30. (Previously Presented) A method for producing a glass filler material for use in dental composites and dental restorations with an average particle size of 0.1 to 20 μm by

- a) melting a composition of about 54 to about 91 mol% SiO_2 , 0 to about 13.6 mol% Al_2O_3 and/or B_2O_3 , 0 to about 27.3 mol% ZrO_2 and/or TiO_2 and/or HfO_2 and/or Y_2O_3 and/or Sc_2O_3 and/or La_2O_3 and/or Ce_2O_3 and/or other lanthanide oxides, about 9 to about 20 mol% alkali metal oxides, 0 to about 22.7 mol% earth alkali oxides at a temperature of about 1200 to about 1800 °C for at least 30 minutes,
- b) crushing the melted glass by transferring into cold water or on metal rollers,
- c) milling the glass granulate obtained by b) to a mean particle size of d_{50} from about 0.1 to about 20 μm ,
- d) dealkalizing the glass powder in excess with a dealkalizing agent,
- e) removing the dealkalizing agent and washing the glass powder with a polar solvent until the filtrate reacts neutral, and
- f) drying the glass powder at a temperature of about 200 to about 1100 °C for at least 30 minutes.

31. (Previously Presented) The method according to claim 30, wherein the melting temperature is from about 1400 to about 1700 °C.

32. (Previously Presented) The method according to claim 30, wherein the dealkalizing agent is an acidic composition.

33. (Previously Presented) The method according to claim 30, wherein the dealkalizing agent is an inorganically or organically acid selected from the group consisting of HCl, [[HJ,]] HJ, HBr, H₂SO₄, H₃PO₄, HNO₃, HClO₄, CH₃COOH, COOH-COOH, H-COOH, citric acid, tartaric acid and polycarboxylic acid.

34. (Previously Presented) The method according to claim 30, wherein the polar solvent consists of water or a mixture of water with other polar solvents, preferably ethanol or acetone.

35. (Previously Presented) The method according to claim 30, wherein is dealkalizing is performed at temperatures of about 50 to about 200 °C.

36. (Previously Presented) The method according to claim 30, wherein the ratio of the glass powder to the dealkalizing agent is about 1:5 to about 1:1000.

37. (Currently Amended) The polymerizable dental material according to claim 38 which is a
~~A glass filler material for use in dental composite[[s and]] or dental restorative material restorations,~~ the material comprising:

- a) about 75 to about 96.95 mol% silicon dioxide (SiO₂),
- b) 0 to about 10 mol% aluminum and/or boron oxide (Al₂O₃, B₂O₃),
- c) about 3 to about 30 mol % zirconium and/or titanium and/or hafnium oxide (ZrO₂, TiO₂, HfO₂), Y₂O₃ and/or Sc₂O₃ and/or La₂O₃ and/or CeO₂ and/or other lanthanide oxides,

- d) about 0.05 to about 3 mol% alkali metal oxides (Na_2O , Li_2O , K_2O , Rb_2O , Cs_2O),
 - e) 0 to about 15 mol% earth alkali metal oxides (MgO , CaO , SrO , BaO),
- wherein the particles of the glass filler material are produced by the method of claim 30.

38. (Currently Amended) A polymerizable dental material containing:
- a) about 3 to about 80 wt.% of one or more cationically and/or radically curable monomers,
 - b) about 3 to about 90 wt.% of the glass filler material prepared by the method of claim 19 or 20,
 - c) 0 to about 90 wt.% of one or more radio-opaque fillers,
 - d) about 0.01 to about 25 wt.% of initiators, retarders and/or accelerators, and
 - e) 0 to about 25 wt.% of auxiliary agents.
39. (Previously Presented) A polymerizable dental material according to claim 38, wherein the curable monomer is an epoxide monomer.
40. (New) A polymerizable dental material according to claim 38 which is a cationically curable composition.